| BIEL-033 |

DIPLOMA – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (DECVI)

00699 **Term-End Examination**

December, 2017

BIEL-033 : BASIC TELEMATICS

Time : 2 hours *Maximum Marks : 70*

Note : Attempt five questions in all. Question no. 1 is compulsory. All questions carry equal marks. Use of scientific calculator is permitted.

1. Choose the correct answer. 7×2=14

   (a) A typical digital telephone channel in TDM circuits is allocated at a speed of
   (i) 4 Kbps
   (ii) 8 Kbps
   (iii) 64 Kbps
   (iv) 1·544 Mbps

   (b) Telephone companies normally provide a voltage of _____ to power telephones.
   (i) + 24 volts DC
   (ii) – 24 volts DC
   (iii) + 48 volts DC
   (iv) – 48 volts DC

(c) Which technology is a set of technologies developed by telephone companies to provide high data rate transmission ?

    (i)   LDS

    (ii)   ASL

    (iii) DSL

    (iv) None of the above

(d) The largest portion of the bandwidth for ADSL carries

    (i)   Upstream data

    (ii)   Downstream data

    (iii) Control data

    (iv) Voice communication

(e) A local telephone network is an example of a _____ network.

    (i)   Packet-switched

    (ii)   Circuit-switched

    (iii) Message-switched

    (iv) None of the above

(f) ISDN handles data pertaining to

    (i)   All digital services

    (ii)   Speech and video

    (iii) Computer data only

    (iv) Speech only

(g) In a DTMF phone, digits are represented by

(i) Orthogonal frequencies

(ii) Orthogonal phases

(iii) Orthogonal codes

(iv) Orthogonal pulses

2. Explain the working of a cordless telephone system with the help of its block diagram. **14**

3. (a) Draw and explain the working of Time Division and Space Division switches used in a telephone exchange. **10**

   (b) State at least two advantages of both the schemes. **4**

4. (a) Explain the terms Numbering and Addressing in an ISDN system. **4**

   (b) Draw the ISDN address structure and explain how the addressing works. **10**

5. What is Traffic Engineering ? Define the terms Busy Hour, Traffic Intensity and Grade of Service with examples. **14**

6. Explain DTMF signalling system with a neat sketch of a DTMF keypad layout. **14**

7. Write short notes on any *four* of the following : $4 \times 3\frac{1}{2} = 14$

   (a) Tones used in Telephone Exchange

   (b) Automated Teller Machine (ATM)

   (c) Data Compression

   (d) Telemedicine

   (e) EPABX

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